

***Central Alberta Regional Consortium (CARC)***  
***Regional Curriculum***  
***Mathematics Implementation Report***  
***Grant 2008-0653***

**2009 - 2010**  
**(year two of three)**

Submitted to Alberta Education  
by  
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## Mathematics Executive Summary 2009 - 2010

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### Year Two Results

**There are many reasons that Year Two could be viewed as a success. The following report will give details and examples of success in the Grant Deliverables.**

#### Advisory Committee

The Mathematic Advisory Committee (MAC) is a standing committee. The role of the MAC is to advise the CARC Mathematics Consultants on how to best meet the needs of all districts and all teachers in the Mathematics Curriculum Implementation Project. The Mathematic Advisory Committee spans all eight districts, and includes central administration, administration, practicing teachers, and ATA Mathematics Specialty Council.

- The Advisory met four times this year
- The meetings were very productive. The meetings were interactive forums where voices from all districts and stakeholders were represented.
- Meetings incorporated Video Conferencing Technologies to enable effective half day meetings
- The Advisory Committee currently consists of 12 members who represent a wide variety of stakeholders within the region including teachers, administrators, curriculum coordinators and curriculum directors

#### CARC Zone Four Professional Development Learning Opportunities

Year Two of the Mathematics Project was extremely successful with a number of programs being offered and number of teachers attending sessions. There were a similar

	2008-2009	2009-2010
Total Events	44	50
Total Participants	631	781
Cancellations	12	15

number of events and participants was due to number of district delivered events. Our focus was to deliver quality district requested Professional Development.

#### COMMENTS FROM ADVISORY COMMITTEE, TEACHER PARTICIPANTS, AND DISTRICT LEADERS.

“I appreciate the concerted effort Margo and Brenda put in their roles as consultants, to ensure that our individual districts needs are met. The Math Consultants listen and provide quality PD providers to our district to support our specific needs on the journey of math implementation. Because our district math needs are very different than a neighboring district. I appreciated that each district could tailor their PD needs. Margo and Brenda also ensured the PD provider worked with us at the district office, at our schools and even at many of our remote sites. This is extremely helpful to get teachers trained in a timely and effective manner that was not cost or time prohibitive.”



## CARC Delivered Learning Opportunities

- **96.0 %** of participants expressed satisfaction with the mathematics sessions that they attended.
- **93.8%** of participants reported they were able to apply the information learned in their sessions to their classrooms, school, or jurisdiction.
- The plan was adapted to suit the emerging needs of the zone.

## District Zone Four Professional Development Learning Opportunities

- **118** District-delivered learning opportunities were provided to **1571** teachers and administrator registrations for sessions. These sessions were led by our Mathematics Expert and Facilitator – David DeCoste, Margo Nygard, Carol O’Brien and Brenda MacDonald
  - District were still offered Math Module sessions to Grade 2, 5, 8 and Grade 3, 6, 9 and we began working with the High School Teachers mostly Grade 10.

### **District – Delivered Learning Opportunities**

	<b>2008-2009</b>	<b>2009-2010</b>
<b>Total Events</b>	<b>106</b>	<b>118</b>
<b>Total Participants</b>	<b>1967</b>	<b>1571</b>
<b>Cancelled Sessions</b>	<b>6</b>	<b>2</b>

### District Days

- Carol O’Brien was seconded for another year as Math Lead Facilitator to help support districts in their implementation, host math sessions, facilitate professional development and be that extra person to help with implementation.
  - We had a number of cohorts running this year. We had a leadership, French Immersion, Literacy, Colony, Differentiated Instruction and Big Ideas and Technology Integration. The two most popular cohorts were Math and Literacy and Math Leadership
    - New Math Module from Alberta Education include – Circle properties Grade 9 which were presented in most school districts and in the zone
    - Offered Math Assessment zone session for Grade 3 and Grade 6-9 based on recommendations from the Math Advisory committee and from the field. Alberta Education came a facilitated these workshops.

#### *COMMENTS REGARDING PD SESSIONS*

“Carol is enthusiastic and very practical. I love when I can walk away with an idea that I can use tomorrow.”

*Participant*

“Best PD I have had in a long time. I loved the Math and Literacy Cohort because we were able to learn but we also built materials we could use. It was a great collaborative event.”

*Math and Literacy*

*Cohort Participant*

“ I love the Math leadership cohort. We have become a very close group. This year we built a wiki to share.

*Math Leadership*



- Offered French Math Professional Development for Francophone and Immersion teachers but we had to cancel as no one registered for the sessions for the second year in a row.
- The number of sessions increased from one school year to the next but had fewer participants because individual schools were requesting classroom demonstration lessons and school based PD rather than Carol doing big presentations to district teachers. The approach was well received, although fewer teachers were reached.

### Next Steps

- Continue with the Lead Teacher Model – hire a High School Teacher
- Technology session – New Smart Math Notebook software
- Number sessions specific to Grade 3, 6, 9
- Grade 10C and 10-3 session continued
- Math 20-1, 20-2, 20-3
- Learner Assessment sessions to support the Grade 3, 6, 9 PAT
- Building common assessments Grade 10
- Creating an ARPDC Moodle 10-3 opportunity – hired Dustin Gustache

And Ed Major from Notre Dame High School to lead the project.

## Zone and District Professional Development Opportunities

### A. Zone Delivered Learning Opportunities

CARC hosted Zone learning opportunities to explore the conceptual framework of the new mathematics curriculum with an emphasis on student learning, acquisition and understanding of mathematics. Wherever possible, these sessions were offered as a series of learning opportunities and equipped teachers with a deep conceptual understanding while building leadership within districts in relation to mathematics. The guiding principles behind CARC's Math Plan were to:

- Provide professional development to meet the needs of

#### Comments about the District Delivered Learning Opportunities

"Margo and Brenda keep us well informed of our PD possibilities and provide us with extremely competent math PD facilitators. Last year we had David Decoste for 4 days and we could also access Carol, the lead math teacher facilitator. In all, we had 8 days of PD provided to our teachers. In my role as curriculum specialist, I am not a Math facilitator. My district would have had to hire a PD provider as well as pay for sub release, but CARC provided that PD support at no cost to my division. This is a huge cost savings and without it I would have had limited PD with my Math teachers."

"I appreciate all the support CARC has provided over the past 3 years. Our teachers are very fortunate to have the quality of expertise CARC has provided. It doesn't get any better than David Decoste."

"Individual district needs are being met through on-site district professional development meeting local needs focused on local teachers."



- individual school boards, culture and clientele
- Build leadership capacity with Zone 4
- Provide specific opportunities to teachers and administrators responsible for implementing the math curriculum
- Provide sessions available to all teachers of mathematics
- Focus sessions specific to grades being implemented in 2010
- Work collaboratively between grades, schools and boards
- Emphasis on math pedagogy
- Focus on assessment for, of, and as learning
- Provide opportunities and time for teachers to network

“Pure mathematics is, in its way, the poetry of logical ideas.”

~Albert Einstein

The workshops focused on the following: front matter of the curriculum, mathematical processes, hands-on manipulatives, interactive learning, assessment and research that supports the change in the delivery of the new program of studies, and technology. The zone supported building leadership capacity and collaboration by: training teacher leaders, providing resources, offering specifically targeted sessions and communicating opportunities for further professional learning. Examples of themes for learning opportunities:

- Orientation and understanding of the new program of studies – target Grade 3,6,9, and 10
- Assessment for Learning in Mathematics focused throughout sessions
- Technology and Mathematics
- Administrator sessions and Parent sessions
- High School Math Program of Studies introduction
- Pattern and Pre-Algebra, Measurement, Shape and Space, Personal Strategies sessions.

### **B. District Delivered Learning Opportunities**

CARC hosted District delivered learning opportunities that explore the conceptual framework of the new mathematics curriculum with an emphasis on student learning, acquisition and understanding of mathematics. The majority of these sessions were delivered by the Math Consultant hired to Zone 4 – David Decoste, as well as, Carol O’Brien (Fitzel). There were some sessions delivered by Trevor Calkins, and Math Consultants (Margo and Brenda). The guiding principles behind CARC’s Math Plan were to:

- Provide professional development to meet the needs of individual school boards, culture and clientele
- Build leadership capacity with Zone 4
- Provide specific opportunities to teachers and administrators who will be responsible for implementing the math curriculum
- Provide sessions available to all teachers of mathematics
- Focus sessions specific to grades being implemented in 2010
- Emphasis on math pedagogy



- Focus on assessment for, of , and as learning
- Provide opportunities and time for teachers to network

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*"If students aren't learning the way  
you teach, teach the way they learn."  
~ Unknown*

The workshops focused on the following: front matter of the curriculum, mathematical processes, hands-on manipulatives, interactive learning, assessment and research that supports the change in the delivery of the new program of studies.

### **C. Building Zone and District Leadership Capacity**

#### **Central Alberta Regional Consortium Math leadership cohort.**

We continued the leadership group established 2007-2008 to assist districts with the increasing demand for math implementation support. Two teachers from each district continued to receive professional development support and facilitation training. Most of these lead teacher presented in their districts as well as, they presented at the Support Staff Conference, District PD days, Teacher's conventions and CASS Curriculum conference. In the 2009-2010 year the focus for this group will be to continue to develop them as district leaders so math implementation has some sustainability after the Grant Implementation money is no longer available. The additional focus for this group is the infusion of technology into the program of studies.



## Overarching Goal: ZONE DELIVERED

To provide implementation support opportunities to all mathematics teachers and administrators including the specific target audience of Grades K, 1, 4, and 7 (mandatory) and 2, 5, 8 (optional) implementing the new Mathematics Program of Studies.

### Goal #1:

#### Provide regional mathematics learning opportunities

#### Overall reflection:

Divisions in the Zone had opportunity to access math consultants and facilitators to provide either district or school based professional development opportunities. Many schools booked the math facilitator to work at their school on PD days with teachers, or on regular school days with students and teachers in the classroom. The classroom time was used to model and demonstrate lessons using ideas centered around teaching the new curriculum; learning through problem solving, using mental math and estimation strategies and developing personal strategies. The lessons involved problem based learning activities, literature books, manipulatives, technologies such as SMART and web 2.0 tools, visual strategies and patterning to teach specific outcomes. Typically there were between 1-3 teachers at a time involved in the demo lesson as well as educational assistants. Proper scheduling allowed time for teacher debriefing and lesson follow up afterward and included the classroom teachers, those observing and administration.

#### Context:

The foundation and guiding document for new math curriculum implementation support is the Alberta Math Program of Studies. Resources, teaching strategies, math process, math teaching pedagogy and a focus on how students learn are all focuses we invest in to support program implementation. Decisions made as to what to offer in programming of CARC events must keep in mind the intent and focus of the program of studies and have direct alignment with our driving focuses as well as the intended learner outcomes.

#### Strategy 1:1

Provide implementation support through Alberta Education Modules for Division I, II and III teachers who are preparing for, or are, implementing. These include a focus on the strands, program overviews and front matter focus, assessment, specific learner activities based on outcomes, and reflections on the math as opposed to the activities.

Indicators	Source of Evidence
<ul style="list-style-type: none"><li>Workshops offered as general sessions</li></ul>	<ul style="list-style-type: none"><li>list of workshops</li></ul>
<ul style="list-style-type: none"><li>participant satisfaction</li></ul>	<ul style="list-style-type: none"><li>ARPDC session evaluation form</li><li>Presenter created evaluation forms</li></ul>
<ul style="list-style-type: none"><li>teacher confidence with key curricular elements and instructional practices</li></ul>	<ul style="list-style-type: none"><li>survey results</li></ul>

#### Year End Report and Reflection on Lessons Learned

Teachers were given the opportunity to access workshops which focused on specific strands and grade levels. Working with teachers through a few specific learner activities from the Alberta Education modules was beneficial because the reflection piece would involve discussing the learning outcomes and which mathematical processes would or could be utilized. This discussion also would often lead to ways to differentiate the activity to provide more support for struggling learners and enrichment activities for students requiring more challenge.





## Strategy 1:2

Provide ongoing professional learning opportunities in general mathematics instructional practices and strategies with a divisional focus or grade specific focus, arranged around curriculum topics/themes.

Indicators	Source of Evidence
<ul style="list-style-type: none"><li>workshops offered as general sessions</li><li>participant satisfaction</li></ul>	<ul style="list-style-type: none"><li>list of workshops</li><li>ARPDC session evaluation form</li><li>Presenter created evaluation forms</li></ul>

## Year End Report and Reflection on Lessons Learned

A big focus of the workshops/PD focused on the number strand and how to develop activities which focused on learning through problem solving and developing/using personal strategies to solve problems. Giving teachers the opportunities to “share their thinking” in a small group or collaborative setting modeled what they can do with their students in terms of communication, reasoning, and assessment. Teachers were often surprised and enlightened to hear about different personal strategies from their peers. This is a key piece in understanding the teaching of the new curriculum. Teachers need to teach children to think mathematically for themselves and must feel confident facing ambiguity and complexity and listen carefully and reflectively to students. Knowing and believing that it is right to let go of some traditional methods doesn’t make changing easier.

## Strategy 1:3

Examine supplementary mathematics resources/methodologies to determine alignment with the program of studies and to inform decisions regarding suitability for Zone 4

Indicators	Source of Evidence
<ul style="list-style-type: none"><li>tool used to review resources</li></ul>	<ul style="list-style-type: none"><li>results obtained as a result of advisory committee review of materials</li></ul>

## Year End Report and Reflection on Lessons Learned

Many teachers in the Zone accessed professional development opportunities that incorporated using ten frame cards, place value cards, visual strategies, mental math skills, and games for teaching conceptual understanding and engaging students in mathematics. Through the use of games, and building and decomposing numbers, students can gain a better sense of “tenness” and patterning which connects to mental math and estimation skills. Using these concrete materials also allows the student opportunity to move from the concrete to pictorial to symbolic use of numbers.

Teachers who were involved in the Math and Literacy Cohort had recommended literature books purchased for them to use in teaching mathematics for their division and share math lessons created by teachers involved in the cohort. Literature book could be used to introduce a concept, assess student's prior experience and knowledge, address misconceptions, show another way to represent an idea, integrate concepts across strands and subjects, as a spring board for independent and collaborative student projects, or to build sensory imagery for concepts. The importance of conceptually understanding the big ideas in mathematics was the focus for choosing appropriate literature.



## Strategy 1:4

Begin to build a relationship with High School Math teachers throughout the Zone in preparation for the new high school program of studies and the create a deeper understanding of the knowledge and skills students will come with (awareness of the K to 9 curriculum, pedagogy and philosophy).

Indicators	Source of Evidence
<ul style="list-style-type: none"><li>• Include a high school voice on decision making</li></ul>	<ul style="list-style-type: none"><li>• High School representation on Advisory Committee</li></ul>
<ul style="list-style-type: none"><li>• workshops offered as general sessions</li></ul>	<ul style="list-style-type: none"><li>• list of workshops</li></ul>
<ul style="list-style-type: none"><li>• participant satisfaction</li></ul>	<ul style="list-style-type: none"><li>• ARPDC session evaluation form</li><li>• Presenter created evaluation forms</li></ul>

## Year End Report and Reflection on Lessons Learned

Various divisions requested CARC provide teacher professional development for High School teachers, administrators, and central office staff around new curriculum, pedagogy, and technology. Workshops were provided which focused on better understanding the front matter and mathematical processes, and personal strategies through activities which involved problem solving, use of manipulatives, and SMART notebook activities.

**Overarching Goal: DISTRICT DELIVERED**

To provide implementation support opportunities to all mathematics teachers and administrators including the specific target audience of Grades K, 1, 4, and 7 (mandatory) and 2, 5, 8 (optional) implementing the new Mathematics Program of Studies.

**Goal #2:**

**Provide support for district mathematics implementation plans.**

**District support was of the upmost importance to our 2009-2010 plan. There was a great deal of professional development support offered to our districts at the district and school level. These decisions were based on our advisory committee and division Curriculum leaders recommendations.**

**Context:**

Based on successful experience with the social studies project, the mathematics implementation plan earmarks funding support directed to districts. This provides greater flexibility to districts, and feeds a collaborative model between districts in Zone 4 as well as requiring the shared responsibility and accountability for the Alberta Education grant deliverables and math implementation within the region. The CARC mathematics consultants maintain ongoing communication with district curriculum leaders relative to district mathematics implementation plans and the relation to the zone math plan.

**Strategy 2:1**

Support development and implementation of district plans by:

- providing focused PD related to the development of district implementation plans
- by highlighting research, providing exemplars/templates, sharing successes
- maintaining ongoing communication between CARC mathematics project consultants and district curriculum contacts
- maintaining ongoing communication between CARC mathematics project consultants and district math teacher leaders (as identified by their districts)

**Indicators**

- PD (upcoming & lessons learned) shared at PD Partner meetings

- jurisdiction implementation plans

- CARC project consultant contact with districts

- district curriculum coordinator satisfaction with support provided

**Source of Evidence**

- summary of PD offerings

- number of district plans requesting support of CARC

- summary of contact with districts

- survey results

**Year End Report and Reflection on Lessons Learned**

Math consultants and facilitators delivered math workshops and in-services to support each district's implementation plan. We made regular visits to district leaders and math lead teachers where requests were often made to the CARC math consultants to organize presenters to help support their plans. Examples of speakers provided by request are Trevor Calkins, David DeCoste, and Carol O'Brien who each delivered professional development presentations and workshops specific to district requests.



## Strategy 2:2

Allocate a portion of the grant to districts to support their implementation plans based on needs within the zone.

Indicators	Source of Evidence
<ul style="list-style-type: none"> <li>consultant days in districts</li> </ul>	<ul style="list-style-type: none"> <li>list of district consultant days</li> <li>amount of dollars used by individual districts</li> </ul>
<ul style="list-style-type: none"> <li>participant satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>ARPDC session evaluation form</li> <li>Presenter session evaluation forms</li> </ul>
<ul style="list-style-type: none"> <li>district curriculum coordinator satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>survey results</li> </ul>
<ul style="list-style-type: none"> <li>consultant reflection</li> </ul>	<ul style="list-style-type: none"> <li>consultant reflection/evaluation form</li> </ul>

## Year End Report and Reflection on Lessons Learned

Each district was given 4 days with dates of their choosing to have David Decoste present in their district at the expense of CARC. Each district chose their own grade, strand, and audience that they wanted emphasized. Districts have been extremely pleased for a variety of reasons:

1. Districts had a quality presenter that they possibly could not afford
2. The dates fit because they could work around their district schedule, pd days, etc.
3. They could customize the professional development that best suited their needs in their district. So one district might have David emphasize assessment while another had David present using the specific outcomes.
4. The professional development was local and therefore, the district did not need to pay for driving and other expenses. Teachers also did not need to travel great distances to acquire the professional development.
5. Personalized service
6. Although hosted in various districts and on various dates throughout the zone, all sessions were open to zone teachers who often took advantage of dates that suited them better even if some travel was involved.

CARC's Lead Math Teacher helped support the implementation and delivery at professional development and the local district level. The math facilitator helped assist with the delivery of professional development at the local district level based upon request of individual schools and groups of teachers.

## Strategy 2:3

Work collaboratively with districts to share expertise and talent found within the zone.

Indicators	Source of Evidence
<ul style="list-style-type: none"> <li>consultant days in districts</li> </ul>	<ul style="list-style-type: none"> <li>list of district consultant days</li> </ul>
<ul style="list-style-type: none"> <li>math teacher leaders days in districts</li> </ul>	<ul style="list-style-type: none"> <li>list of district sessions facilitated by math teacher leaders</li> </ul>
<ul style="list-style-type: none"> <li>participant satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>ARPDC session evaluation form</li> </ul>
<ul style="list-style-type: none"> <li>district curriculum coordinator satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>survey results</li> </ul>
<ul style="list-style-type: none"> <li>consultant reflection</li> </ul>	<ul style="list-style-type: none"> <li>consultant reflection/evaluation form</li> </ul>



### **Year End Report and Reflection on Lessons Learned**

We continue to work collaboratively with districts to share expertise and talent found within the zone. Our lead math teachers were able to present the Alberta Education Math Modules again this year along with assessment, English language learning math strategies and online tools for math in their district. We will continue to promote these math lead teachers with the hope that they will provide professional development and support as sustainable support for our area.

A Colony Cohort was established for the zone so teachers of this unique situation could share strategies, resources, and assessments they use. This cohort allowed teachers the opportunity to discuss, share, and plan how to implement the new program of studies in a K to 9 setting.

### **Overarching Goal: BUILDING LEADERSHIP CAPACITY**

To provide implementation support opportunities to all mathematics teachers and administrators including the specific target audience of Grades K, 1, 4, and 7 (mandatory) and 2, 5, 8 (optional) implementing the new Mathematics Program of Studies.

#### **Goal #3:**

**Build leadership capacity within the CARC region.**

#### **Overall Reflection:**

The development of leadership capacity is a critical element for mathematic implementation. With the last year of funding to support implementation of the new mathematics program of studies, there are still many teachers K-12 who have not received training on the many changes to the program of studies but more importantly the pedagogical shifts for various reasons. Each year new teachers are hired that may not have the same understanding of the importance behind the shifts in the program. Building leaders helps to broaden the base of understanding. By doing this we ensure that the teachers new and old are supported by local talented teachers. Most importantly, we hope to be able to sustain this culture long after the financial support is gone.

Working with teachers directly in classrooms as well as having time to debrief and do follow up was very beneficial in building leadership capacity within schools. Teachers could share teaching strategies and lessons with other grade level teachers and build on activities. Teachers would also observe lessons as a grade group, which provided them with an opportunity to discuss the lesson merits, strategies, resources and materials within this group during embedded PLC time. Based on these conversations, teachers could better articulate next steps in terms of follow up or future PD sessions.

Similarly, by providing specific grade learning opportunities within a district (Eg: Grade 6 Number ) teachers could share information about instructional strategies, resources, building and using SMART lessons, with other teachers in their district schools.



## Context:

The mathematics consultants with the support of the advisory committee and district curriculum leaders have identified the development of leadership capacity as a critical element for mathematics implementation and sustainability. Project goals include supporting the continuation of the Math Leader Teachers Cohort established in year one while examining ways to enhance mathematics leadership beyond the recently established cohort.

## Strategy 3:1

Continue working with Math Leadership Cohort in the area of new math implementation and teaching practices and strategies, both general and specific in nature.

Indicators	Source of Evidence
<ul style="list-style-type: none"> <li>review of the literature</li> <li>requested areas of support</li> </ul>	<ul style="list-style-type: none"> <li>summary of findings</li> <li>requests for support at divisional level beyond the Alberta Education Modules</li> </ul>
<ul style="list-style-type: none"> <li>leader training of the Alberta Education math modules for Div I and II</li> </ul>	<ul style="list-style-type: none"> <li>interest generated</li> <li>responses from district curriculum coordinators</li> </ul>
<ul style="list-style-type: none"> <li>Online Community</li> </ul>	<ul style="list-style-type: none"> <li>Online Community for leaders focused on continued support</li> <li>Interest in online communities</li> </ul>

## Year End Report and Reflection on Lessons Learned

We meet with our Math Lead teachers from each district 4 times last year – three face-to-face with VC technology included and one completely online through Elluminate. Our leaders received training as well as participated in many discussions and sharing sessions that have helped to shape implementation in zone 4. They were also allocated discretionary professional development money to enhance their own personal mathematical journey, some attended Bill McBride, while others attended Marion Small to get training on differentiated instruction. Districts utilized these talented individuals at their August start up professional development days, other professional development days during the year, with new teacher as a mentor, as well as, presenting at AISI days. These lead teachers are becoming very knowledgeable and comfortable presenting. They also felt well received by their peers and district leads.

## Strategy 3:2

Establish different structures to continue building leadership capacity in the Zone beyond the leadership cohort established in the spring of 2008.

Indicators	Source of Evidence
<ul style="list-style-type: none"> <li>ideas generated</li> <li>teacher participation/nomination</li> </ul>	<ul style="list-style-type: none"> <li>list of suggestions</li> <li>interest generated</li> <li>responses from district curriculum coordinators</li> <li>development of additional cohorts in specific areas</li> </ul>
<ul style="list-style-type: none"> <li>Online Community</li> </ul>	<ul style="list-style-type: none"> <li>Online Community for leaders focused on continued support</li> <li>Interest in online communities</li> </ul>



## Year End Report and Reflection on Lessons Learned

Working with teachers in the Math and Literacy cohort and the Colony Cohort also allowed teachers to build leadership capacity. These cohort days provided teachers with the opportunity to build continuity with the working group, the opportunity to network with colleagues on an ongoing basis, and develop classroom-based resources that teachers could use. This information could then be shared within their schools and districts.

**Overarching Goal: ALTERNATIVE PROFESSIONAL DEVELOPMENT STRATEGIES**  
To provide implementation support opportunities to all mathematics teachers and administrators including the specific target audience of Grades K, 1, 4, and 7 (mandatory) and 2, 5, 8 (optional) implementing the new Mathematics Program of Studies.

## Goal #4:

**Explore alternative professional development strategies.**

### Context:

Ongoing demands of curriculum implementation in multiple subject areas puts a strain on the education system in terms of budget, teacher time away from the classroom, availability of substitute teachers, and PD 'fatigue' among teachers. Alternate delivery modes must be considered in order to minimize the challenges and maximize the ability of professional development to positively impact teacher practice.

CARC math project plan seeks to explore possible new directions in teacher professional learning using the "Anywhere, Anytime" distributed learning motto. Ongoing consultation with district leaders and technology integration specialists is an integral part of this exploratory and learning process.

### Strategy 4:1

Explore the feasibility of alternate delivery modes for mathematics professional development through the use of technology and timetabling.

Possible examples might include summer institutes, weekend retreats, book study, lesson study, technology delivered/mediated "Anytime, Anywhere" learning, Wikis, Blogs, Nings or other appropriate social networking media, and so forth.

Indicators	Source of Evidence
<ul style="list-style-type: none"><li>review of literature and examination of existing models</li></ul>	<ul style="list-style-type: none"><li>summary of findings</li></ul>
<ul style="list-style-type: none"><li>teacher interest</li></ul>	<ul style="list-style-type: none"><li>teachers requesting different modes of PD</li><li>teachers using different modes of PD (tracking system)</li></ul>
<ul style="list-style-type: none"><li>expressed support from district curriculum leaders and math advisory</li></ul>	<ul style="list-style-type: none"><li>ongoing consultation at Zone curriculum meetings and advisory meetings</li></ul>

## Year End Report and Reflection on Lessons Learned





Our two Provincial High School Math Institutes each incorporated different avenues of technology for delivery to our sites. The winter had us using video conferencing and moodle to connect with Elluminate as the backchannel. During the spring conference we chose webcast as the format with Elluminate running on the side. Between conferences we provided support to teachers through our keynote speakers in Elluminate sessions.

The idea of alternative modes of PD delivery is there and available but teachers are inexperienced and novice at these new modes and are leary and reluctant to use it. Educating teachers on how use the technology is important, they need to feel confident they can learn through webinar although they do not have to feel comfortable using webinars. As learners we need to understand we have access to many of the world professional development gurus are using webinars as their mode of delivery and that learning how to use webinars is important so that they can access an extensive PD world. This would be educating them on the value of alternative modes of PD although we are working to provide different modes of synchronous and asynchronous learning opportunities all supported in the area of technology so teachers do not feel they have to be technical, and trouble shooting experts on top of everything else.

#### Strategy 4:2

Continue with and update mathematics links on the CARC website with a focus on Alberta and Canadian based materials

Indicators	Source of Evidence
<ul style="list-style-type: none"><li>ideas generated</li></ul>	<ul style="list-style-type: none"><li>teachers adding appropriate sites</li></ul>
<ul style="list-style-type: none"><li>teacher satisfaction</li></ul>	<ul style="list-style-type: none"><li>use of LearnAlberta</li></ul>

#### Year End Report and Reflection on Lessons Learned

We encouraged our teacher to use the LearnAlberta site and also offered PD sessions on using LearnAlberta. We did not update the Mathematics links on the CARC website as we thought it would be beneficial for our lead teacher cohort to reconstruct the list of appropriate websites for teachers and organize it in a way that is useful to teachers and goes beyond a 'list'.

Understanding the curriculum, purpose of searching, digital citizenship and the 21<sup>st</sup> century classroom is important before tackling such a task in order to make it a useful and flexible product for teachers. What we need to do is create open access to our wikis and create social networking tags (for example using twitter and delicious) to create networks of learners.





## **Overarching Goal: FOLLOW UP PROFESSIONAL DEVELOPMENT SUPPORT**

To provide implementation support opportunities to all mathematics teachers and administrators including the specific target audience of Grades K, 1, 4, and 7 (mandatory) and 2, 5, 8 (optional) implementing the new Mathematics Program of Studies.

### **Goal #5:**

**Provide “After PD” support to individual teachers to help increase student math achievement in Zone 4**

#### **Context:**

Professional development and teacher learning does not end when the teachers leave the formal PD session. Support has to be provided to teachers in their classrooms once they have had time to try out new ideas or pedagogy learned, and provide them with a chance to process information and ask questions.

After PD support is a needed component for successful implementation of the intended pedagogy of the Alberta Program of Studies.

#### **Strategy 5:1**

Correspond with teachers who attended PD through email, newsletters and phone conversations to provide further support as requested.

<b>Indicators</b>	<b>Source of Evidence</b>
<ul style="list-style-type: none"><li>• sharing of information related to math implementation</li></ul>	<ul style="list-style-type: none"><li>• ongoing consultation with zone leaders</li><li>• sharing of emails, newsletters and information applicable to math</li></ul>
<ul style="list-style-type: none"><li>• Continued conversations and requests for further understanding</li></ul>	<ul style="list-style-type: none"><li>• teachers requesting further PD</li><li>• teachers attending future PD</li></ul>
<ul style="list-style-type: none"><li>• expressed support from district curriculum leaders</li></ul>	<ul style="list-style-type: none"><li>• ongoing consultation at Zone curriculum meetings and advisory meetings</li></ul>

### **Year End Report and Reflection on Lessons Learned**

Math Facilitator: Having the unique position of being able to work directly in schools with teachers and students allowed the flexibility to schedule follow up conversations and learning opportunities as well as build relationships with staff and administration at schools. Many teachers would request resources, books, or activities that had been modeled at their school.

Corresponding with teachers who attended PD through email and phone conversations was easy. We did not create a newsletter as originally planned as we were unsure the validity of blanket newsletter that did not address individual needs. We prided ourselves on our prompt return of email, within 2 days. Whenever we came across new material or points of interest, we did share this with our participants, curriculum leaders, math advisory, and cohorts as quickly as possible. We worked hard at sharing new information, questions, and ideas with our Math Advisory Group, Curriculum District leaders and Math Leads.

We shared information at the three Curriculum Zone meetings. We also drove to each district and had face-to-face conversations with the district curriculum directors/coordinators and



superintendents. We did this twice last year. It was an opportunity for us to share information but more importantly to hear the concerns and needs of our districts. It was these conversations that direct our future inservices but also to help create our 2009-2010 plan.

## Strategy 5:2

Create and support a web based forum for teachers to continue conversations, ask questions, and share best practices with one another creating an online PLC.

### Indicators

- ideas generated
- focused online Professional Learning Communities

### Source of Evidence

- teachers adding appropriate sites
- use of social networking media
- interest by teachers

## Year End Report and Reflection on Lessons Learned

### Math Facilitator:

Teachers in the math and literacy cohort submitted work to a Math and Literature Moodle. This included lessons based on literature books used to teach the math outcomes in the K-8 curriculum. These lessons could include: learning activities, SMART notebook activities, assessment pieces, as well as literature links. As a group they also created a Google doc, a compiled list of on line resources which could assist teachers in using literature in math.

We did not complete our strategy 5:2. We looked at many different platforms to see which was going to be the effective and efficient form of online professional learning community. We decided late in the spring to use moodle in the 2009-2010 school year to provide a supported web based forum for teachers to continue conversations, ask questions, and share best practices with one another.



## Successes and Challenges of the CARC Math Project 2009 - 2010

### ***CARC Math Facilitator:***

Overall, I felt successful in my role as a Math Facilitator for CARC.

The greatest reward was the positive feedback from teachers and administrators about how grateful they were to have someone available to work with them on curriculum implementation in math. Generally, this referred to the information, materials, strategies and use of technology that was shared with teachers in the zone. Teachers found this very relevant, worthwhile and aligned with the new thinking for teaching and learning the new math curriculum. The opportunity to form relationships with teachers and administrators in the Zone was also very rewarding and it allowed me to do more intensive work at schools with individuals rather than just provide a single workshop or PD session. The opportunity for conversations about outcomes and assessment also developed with the curriculum implementation.

Teachers were also grateful to have the opportunity to bring professional development opportunities directly to their school and into classrooms. For schools in remote rural areas, this was a great benefit and required way less traveling and sub time. Few teachers took advantage of the VC opportunity for delivery of a math workshop.

Leading the math cohort groups was a great learning opportunity for everyone involved. It impressed me how focused and talented the cohort members were. These groups worked diligently together with a common purpose and collectively put together excellent math projects and lessons with the intent of sharing beyond the cohort.

Over the past year and a half I was able to present many parent sessions to schools and districts across the Zone which highlighted the changes in the math curriculum and examples of what this looked like. I was impressed with both the interest and positive reception parents had toward the new math curriculum once they understood the focus and reasons for the changes. As the curriculum moves up through the grades, parents are becoming more accustomed to what personal strategies and “teaching through problem solving” looks like as well as outcome based assessment.

This position allowed me the unique opportunity to network with students, teachers, administrators, curriculum coordinators, and parents from different schools and districts throughout the zone. Teaching math is my passion and I believe this new curriculum allows both teachers and students the opportunity to understand math more deeply and appreciate how and why it works. The feedback from teachers has been positive. It’s encouraging to see both teachers and students excited about learning math.



## **CARC Math Consultants:**

Through our lessons learned we believe it is important to build collaboration among the zone as well as support collaboration within our districts. One thing we have moved to this year that has resulted from our lessons learned is that while we may have many different cohorts of math 10 in each of our districts, the between and online collaboration sites, such as Moodle, is one common site used to promote collaboration and learning within the whole.

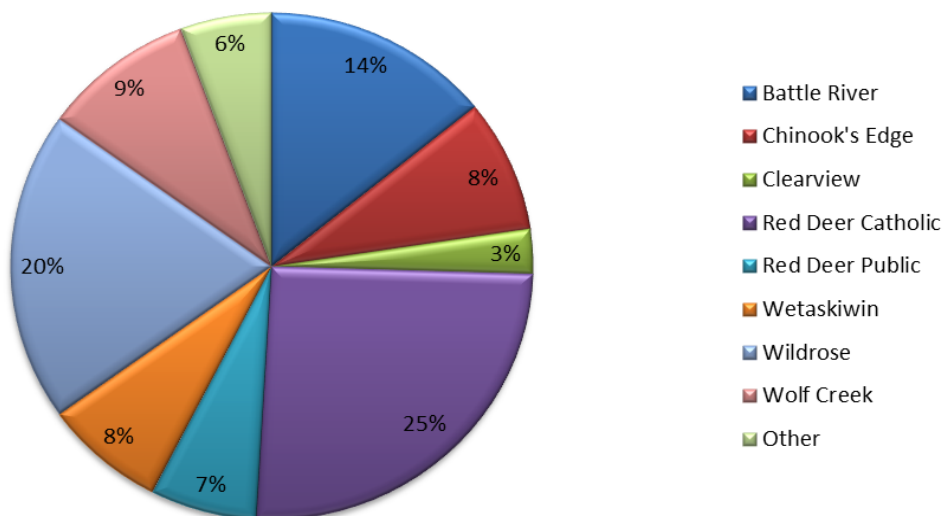
The math consultants chose to share their overall view of the year through animation. Please visit the following link to hear our story.

[Xtranormal](http://www.xtranormal.com/watch/7499593) ([www.xtranormal.com/watch/7499593](http://www.xtranormal.com/watch/7499593))

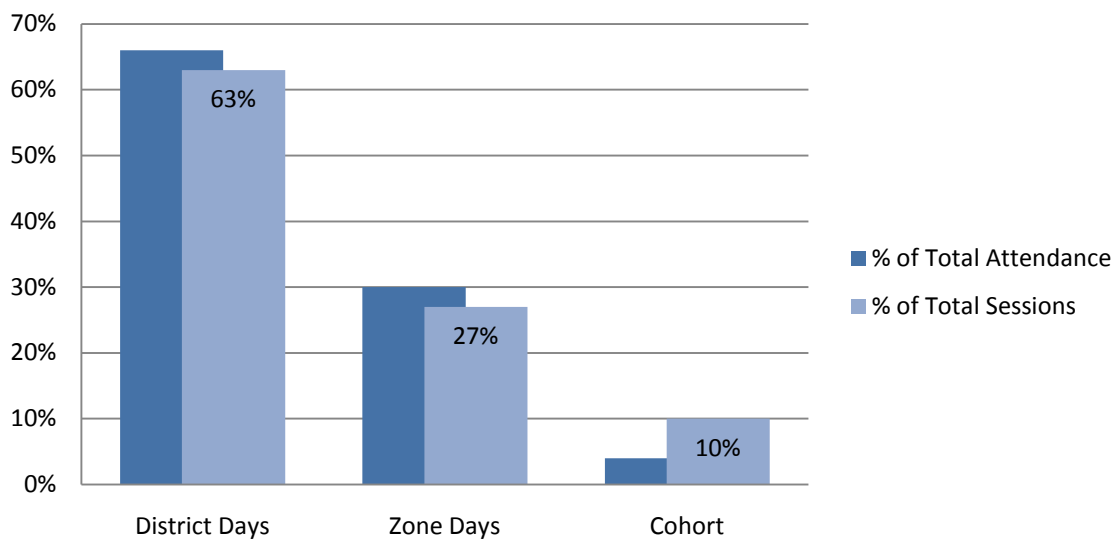




### District Participation in CARC Math Sessions 2009-2010



### Comparing District, Zone and Cohort Sessions and Attendance





## Summary of Math Evaluations

Evaluation Descriptors		
Provided overview at beginning	96.0%	3.5%
Provided opportunities to interact	95.8%	3.8%
Provided strategies to integrate	93.8%	3.8%
Session cost was reasonable	97.8%	4.8%
I increased knowledge	97.0%	4.6%
I learned student learning strategies	95.0%	4.2%
I was able to reflect	86.9%	7.1%
<b>Averages</b>	<b>94.6%</b>	<b>4.6%</b>

## Highlight Comments from Participants in 2009-2010

*These comments were taken from Zone, District, Cohort and District Leader evaluations and conversations.*

### Comments/ Suggestions for the Presenter (Margo, David, Carol, Brenda and other presenters)

- Very personable.
- Fun for every student with manipulatives.
- Extremely knowledgeable
- Easy to talk to
- Fun session
- Active
- Loved the hands on.
- Interesting activities.
- Some great ideas
- Great ideas. More use of materials. Too much time on one topic. Too much sitting.
- Was disappointed to hear about how many ways we teach are the wrong ways, or the wrong techniques
- Fabulous stories to bring learning home.
- Any activities to integrate technology while teaching
- Great ideas to help the students visualize.
- Teach number sense. Does the answer make sense ( very helpful)
- Got me thinking a lot about how I teach math. I understand better the mistakes my students make regularly and why.
- We are so lucky to have the PD and planning support
- Loved the humor, stories and a Monday morning ready activities



## Comments/Suggestions for CARC (Registrations, Communications, etc.)

- Excellent
- Very reasonable with lunch included.
- Very easy to register on line.
- Registration process is easy.
- I appreciated the confirmation email.
- Wheat allergies. I did not eat.
- Excellent as always.
- Lunches are always so good
- Great support from the office when I phoned

## Changes I will make in my practice as a result of this session

- Incorporate more of these visualizing strategies.
- Try to do some every week to keep the momentum going.
- Use of more manipulatives in different ways.
- Make use of Smartboard along with manipulatives.
- Chunking fit everyone's learners.
- I will use Smartboard and manipulatives together when instructing.
- Use different blocks for multiplication.
- Multiplication as a process Area.
- Using the power of ten and squares to increase student learning.
- I think I am finally getting this personal strategies approach
- I am excited to teach deeper rather than superficially getting through the curriculum

## What I need to support my further learning on this topic

- The material and a workshop.
- Spend time preparing
- Another session – My brain is full.
- Revisit this again after I have implemented
- Website
- Practice.
- Resources.
- Power of ten visual cards.
- Time to think through all learned then put into practice . Discuss with colleagues.
- Another session to come together to plan using what we have learned
- How to incorporate personal strategies
- Time to build resources and plan

## I was satisfied with this session because:

- Practical, hands-on.
- I've got ideas for tomorrow.
- It seems to help students to catch on faster so I'm all for this.
- Practical uses.





- It gave me better ideas to use what I have and new ideas to try.
- A few new ideas.
- Helped to create a new creative ways to utilize manipulatives in ways I'd not considered on my own.
- She was enthusiastic and informative.
- It was very active.
- It was hands on and practical.(x2)
- It gave me some new strategies to use.
- Easy to adapt to classroom and easy to follow and understand.
- Much more enthusiastic. At convention in Feb, Today seemed to jump around "rote presentation". Use of humour good.
- It made sense.
- I gave me new concrete ideas for math.
- It adds to my teaching.
- I am excited to take this home and to school.
- It was practical, logical and concise.
- It related to what I am teaching.
- I can take what I learned today and use it tomorrow.
- Enthusiasm, materials, presentation.. and a whole day to reflect on math. Thank you!
- I learned so much-knew ideas and methods to teach kids- visual and also keep them moving
- and having fun.
- I felt like it was a day well spent.

### **Comments from District Leaders on District Visits (twice a year), Advisory Meetings (4 times a year) and Curriculum Coordinator Meetings**

- I appreciate the concerted effort Margo and Brenda put in their roles as consultants, to ensure that our individual districts needs are met. The Math Consultants listen and provide quality PD providers to our district to support our specific needs on the journey of math implementation. Because our district math needs are very different than a neighboring district. I appreciated that each district could tailor their PD needs. Margo and Brenda also ensured the PD provider worked with us at the district office, at our schools and even at many of our remote sites. This is extremely helpful to get teachers trained in a timely and effective manner that was not cost or time prohibitive.
- Margo and Brenda keep us well informed of our PD possibilities and provide us with extremely competent math PD facilitators. Last year we had David Decoste for 4 days and we could also access Carol, the lead math teacher facilitator. In all, we had 8 days of PD provided to our teachers. In my role as curriculum specialist, I am not a Math facilitator. My district would have had to hire a PD provider as well as pay for sub release, but CARC provided that PD support at no cost to my division. This is a huge cost savings and without it I would have had limited PD with my Math teachers.
- I appreciate all the support CARC has provided over the past 3 years. Our teachers are very fortunate to have the quality of expertise CARC has provided. It doesn't get any better than David Decoste.





## MATH REPORT BUDGET

<b>Revenue</b>		2009-2010 Budget	2009-2010 Actual
Carry Over 2009-2010		120,375	120,368
Implementation (Admin)		41,000	41,000
Implementation (Math)		190,000	190,000
Registration Fees			11,422
<b>Total Revenue</b>		<b>351,375</b>	<b>362,789</b>
<b>Expenditure</b>			
Administration/Operation	<b>400</b>	25,000	43,100
Advisory Committee Meetings	<b>615</b>	4,000	3,214
Capital Expenses	<b>750</b>	2,000	
Coordinator Expenses	<b>620</b>	13,000	17,240
Coordinator & Facilitator Salaries	<b>411</b>	148,000	192,674
Provincial Math Institute Days		20,000	15,000
Technology			
		<b>212,000</b>	<b>271,227</b>
<b>Zone/District Days</b>			
Facility/Food/Session Supplies	<b>610</b>	14,000	14,404
Presenter/Attendee - Travel/Subsistence	<b>460</b>	15,000	7,647
Presenter/Facilitator - Honorarium	<b>590/411</b>	23,000	14,999
		<b>52,000</b>	<b>37,275</b>
<b>Cohort Days</b>			
Facility/Food/Session Supplies	<b>610</b>	14,000	1,000
Presenter/Attendee - Travel/Subsistence	<b>460</b>	10,000	3,619
Presenter/Facilitator - Honorarium	<b>590</b>	6,000	
Sub Teachers	<b>230</b>	57,375	15,183
		<b>87,375</b>	<b>19,802</b>
<b>Total Expenses</b>		<b>351,375</b>	<b>328,304</b>
<b>Balance Remaining</b>		<b>0</b>	<b>34,485</b>



## Appendix 1

### Math Sessions Offered in 2009-2010

	Focus	Date	Session		# Registered	# Attended
MathDist	25/08/2009	Power of Ten	Cancelled		0	
MathDist	26/08/2009	Using Manipulatives to Teach to the Big Ideas in Math	35		35	
MathDist	26/08/2009	Using Manipulatives to Teach to the Big Ideas in Math	16		16	
MathDist	28/08/2009	Incorporating SMART Learning into K-3 Math Curriculum	29		29	
MathDist	28/08/2009	Using Manipulatives/Interactives to Support HS Math	14		14	
MathDist	09/09/2009	Parent Session	130		130	
MathDist	15/09/2009	In Class Demos	6		6	
Math	23/09/2009	What About Number? - Grade 3	7		7	
Math	24/09/2009	What About Number? - Grade 3	Cancelled		0	
MathDist	24/09/2009	Number - Grade 6	6		6	
Math	25/09/2009	Differentiated Instruction in Math	7		7	
MathDist	25/09/2009	Patterns	6		6	
MathDist	28/09/2009	Number - Grade 6	25		25	
MathDist	29/09/2009	Number - Grade 9	17		17	
Math	01/10/2009	Building Literacy in Math (A Focus on Problem Solving)	9		9	
Mcohort	02/10/2009	Colony Cohort	8		8	
MathDist	05/10/2009	Grade 6 Math Team	4		4	
Math	13/10/2009	ARPDC/DL Math Meeting	11		11	
MathDist	13/10/2009	Power of Ten - Number Strand - am	16		16	
MathDist	13/10/2009	Power of Ten - Number Strand - pm	12		12	
MathDist	15/10/2009	Grade 3 Math Team	4		4	
Math	16/10/2009	Interpreting Achievement Test Results - Elementary and Junior High	6		5	
MathDist	20/10/2009	Visual Strategies for Number	20		20	
Mcohort	22/10/2009	Math & Literacy Cohort - Day 1 of 3	15		14	
MathDist	26/10/2009	Number Gr. 8&9	Cancelled		0	
MathDist	27/10/2009	Oct 27: Grade 9-10 Number	15		15	
MathDist	27/10/2009	Teaching to the Strands in the New Math Curriculum	15		15	
MathDist	28/10/2009	Number 9-10	13		15	
Math	28/10/2009	What About Number? - Grade 6	7		7	
MathDist	29/10/2009	Math Grade 9	15		15	
MathDist	29/10/2009	Statistics & Probability	20		17	



<b>Math</b>	29/10/2009	What about Number? - Grade 6	Cancelled	0
<b>Math</b>	30/10/2009	Interpreting Diploma Exam Results - Senior High	18	18
<b>MathDist</b>	02/11/2009	Math & Lit Grades 4-9	2	2
<b>MathDist</b>	02/11/2009	Number 9-10	0	14
<b>MathDist</b>	02/11/2009	Power of Ten Visual Strategies	37	37
<b>MathDist</b>	03/11/2009	Class Demos Number Strategies	4	4
<b>MathDist</b>	03/11/2009	Statistics & Probability	0	14
<b>Mcohort</b>	04/11/2009	Big Ideas & Differentiated Instruction Cohort - Day 1 of 3	Cancelled	0
<b>MathDist</b>	04/11/2009	Lit and Math Cohort Meeting	1	1
<b>MathDist</b>	05/11/2009	Class Demos Grade 5 Team	4	4
<b>MathDist</b>	05/11/2009	Number	15	37
<b>MathDist</b>	06/11/2009	Class Demos Grade 2 Team	6	6
<b>MathDist</b>	06/11/2009	Patterns Grade 3	13	28
<b>MathDist</b>	09/11/2009	Class Demos Number Strategies	4	4
<b>Math</b>	17/11/2009	Power of Ten	24	43
<b>Math</b>	18/11/2009	Power of Ten	60	62
<b>Math</b>	19/11/2009	Power of Ten	36	35
<b>Math</b>	20/11/2009	Power of Ten	7	38
<b>MathDist</b>	23/11/2009	Class Demos Number Strategies	4	4
<b>Math</b>	24/11/2009	What about Number? - Grade 9	Cancelled	0
<b>MathDist</b>	24/11/2009	Class Demos Number Strategies	5	5
<b>Math</b>	25/11/2009	What about Number? - Grade 9	Cancelled	0
<b>MathDist</b>	26/11/2009	Class Demos Number Strategies and 1/2 Day PD with Teachers	6	6
<b>MathDist</b>	26/11/2009	Grade 3 Introduction and Patterns	32	32
<b>Math</b>	26/11/2009	Implementation of the Revised Program of Studies for Math 10-12	Cancelled	0
<b>Math</b>	26/11/2009	Patterns and Pre-Algebra Grade 3	27	32
<b>Math</b>	27/11/2009	Writing Effective Machine Scored questions for HS Math and Science	19	18
<b>Math</b>	30/11/2009	Fostering the development of number sense K to 6	15	15
<b>MathDist</b>	30/11/2009	Class Demos Number Strategies	7	7
<b>Math</b>	30/11/2009	Patterns and Pre-Algebra Grade 6	11	12
<b>Math</b>	01/12/2009	Becoming CANCELLED	Cancelled	
<b>Math</b>	02/12/2009	Math & Literacy Cohort K-3 Day 2 Of 3	15	15
<b>MathDist</b>	02/12/2009	Time to get SMART and other web tools in the math classroom K to 12	15	15
<b>Mcohort</b>	04/12/2009	Colony Cohort Day 2 Of 4	Cancelled	0
<b>Mcohort</b>	10/12/2009	Dec 10: Math Leadership Cohort	12	8



<b>MathDist</b>	06/01/2010	Demo Lessons Teacher PD	5	5
<b>MathDist</b>	07/01/2010	Demo Lessons Teacher PD	10	10
<b>MathDist</b>	07/01/2010	Demo Lessons Teacher PD	3	3
<b>MathDist</b>	08/01/2010	Demo Lessons Teacher PD	7	7
<b>MathDist</b>	08/01/2010	Demo Lessons Teacher PD	3	3
<b>MathDist</b>	11/01/2010	Demo Lessons Teacher PD	6	6
<b>Math</b>	14/01/2010	Power of Ten Adding & Subtracting Strategies	3	3
<b>MathDist</b>	18/01/2010	Number & Stats	15	15
<b>MathDist</b>	18/01/2010	Demo Lessons Teacher PD	12	12
<b>MathDist</b>	19/01/2010	Demo Lessons Teacher PD	15	15
<b>MathDist</b>	19/01/2010	Patterns & Algebra	19	19
<b>MathDist</b>	20/01/2010	Patterns	10	10
<b>MathDist</b>	20/01/2010	Grade 9 Shape and Space	11	11
<b>MathDist</b>	21/01/2010	New Curriculum Implementation	30	30
<b>MathDist</b>	22/01/2010	Grade 3 Shape and Space	25	25
<b>MathDist</b>	22/01/2010	New Curriculum Implementation	26	26
<b>Mcohort</b>	22/01/2010	Colony Cohort Day 2 of 4	6	6
<b>Math</b>	25/01/2010	Provincial High School Math Institute - Seeing the World Mathematically for All	84	84
<b>MathDist</b>	26/01/2010	Demo Lessons Teacher PD	4	4
<b>Math</b>	27/01/2010	Power of Ten Multiplication & Division Strategies	2	2
<b>Mcohort</b>	27/01/2010	Math & Literacy Cohort - Day 3 of 3	14	14
<b>Math</b>	28/01/2010	Grade 3 Number	21	21
<b>Math</b>	29/01/2010	K-3 Math Strategies / Div.PD Day	15	15
<b>Math</b>	29/01/2010	4-6 Math Strategies / Div.PD Day	12	12
<b>MathDist</b>	01/02/2010	Feb 01: Shape And Space	4	4
<b>MathDist</b>	02/02/2010	Feb 02: New Curriculum Implementation	0	37
<b>MathDist</b>	02/02/2010	Feb 02: Number Grade 3	0	25
<b>MathDist</b>	03/02/2010	Feb 03: Demo Lessons/Teacher Debrief	6	6
<b>MathDist</b>	03/02/2010	Feb 03: New Curriculum Implementation	0	37
<b>MathDist</b>	03/02/2010	Grade 6 Shape and Space	12	12
<b>MathDist</b>	04/02/2010	Feb 04: Structure And Teaching 10	1	10
<b>MathDist</b>	05/02/2010	Feb 05: Structure And Teaching 10	0	7
<b>MathDist</b>	08/02/2010	Teaching to the New Math Curriculum	12	12
<b>MathDist</b>	09/02/2010	Demo Lessons/Teacher Debrief	6	6
<b>Mcohort</b>	10/02/2010	Big Ideas & Differentiated Instruction Cohort - Day 1 of 2	0	0
<b>Math</b>	11/02/2010	Feb 11: Power CANCELLED	0	0



<b>MathDist</b>	11/02/2010	Math Grade 6 - Measurement	11	11
<b>Mcohort</b>	12/02/2010	Feb 12 and Apr 09: Infusing Literature In Math--2 days	4	4
<b>MathDist</b>	18/02/2010	Demo Lessons/Teacher Debrief	5	5
<b>Mcohort</b>	18/02/2010	Feb 18: Grade CANCELLED	0	0
<b>MathDist</b>	19/02/2010	Demo Lessons/Teacher Debrief	6	6
<b>MathDist</b>	22/02/2010	Demo Lessons/Teacher Debrief	6	6
<b>MathDist</b>	24/02/2010	Demo Lessons/Teacher Debrief	6	6
<b>Math</b>	25/02/2010	Feb 25: Power CANCELLED	0	0
<b>MathDist</b>	25/02/2010	Teaching to the New Math Curriculum	10	10
<b>MathDist</b>	26/02/2010	Demo Lessons/Teacher Debrief	6	6
<b>MathDist</b>	26/02/2010	Demo Lessons/Teacher PD in P.M.	12	12
<b>MathDist</b>	01/03/2010	Mar 01: Algebra	14	14
<b>MathDist</b>	02/03/2010	Mar 02: Geometry	14	14
<b>Math</b>	02/03/2010	Mar 02: NEW Grade 3 PAT A.M.	47	43
<b>Math</b>	02/03/2010	Mar 02: NEW Grade 3 PAT P.M.	34	33
<b>MathDist</b>	03/03/2010	Mar 03: Personal Strategies Within Problem Solving	0	
<b>Mcohort</b>	03/03/2010	Mar 03: Bringing SMART CANCELLED	0	0
<b>MathDist</b>	04/03/2010	Grade 3 Measurement	26	26
<b>MathDist</b>	04/03/2010	Math 10 - Planning	10	10
<b>MathDist</b>	04/03/2010	Mar 04: Shapes and Space	16	15
<b>MathDist</b>	05/03/2010	Mar 05: Stats, Probability and Planning with New Curriculum	0	0
<b>MathDist</b>	05/03/2010	Using Literature in Math	10	10
<b>MathDist</b>	05/03/2010	Kitchen Sink Mathematics	5	5
<b>MathDist</b>	09/03/2010	Demo Lessons/Teacher Debriefing	5	5
<b>MathDist</b>	10/03/2010	Demo Lessons/Teacher Debriefing	6	6
<b>Math</b>	12/03/2010	Mar 12: Failing To Plan Is Planning To Fail (Pearson)	26	24
<b>MathDist</b>	16/03/2010	Demo Lessons/Teacher P.D. in p.m.	13	13
<b>Math Dist</b>	22/03/2010	Math Grade 3 Planning	35	35
<b>MathDist</b>	22/03/2010	Demo Lessons/Teacher Debriefing	4	4
<b>MathDist</b>	23/03/2010	Mar 23: Number Grade 6	0	11
<b>MathDist</b>	23/03/2010	Grade 6 Number Session	11	11
<b>MathDist</b>	23/03/2010	Parent Session New Math Curriculum	10	10
<b>MathDist</b>	25/03/2010	Math Grade 6 & 9 Planning	18	18
<b>MathDist</b>	26/03/2010	math Grade 6 - Planning	18	18
<b>Math</b>	29/03/2010	The NEW Grade 6 & 9 CANCELLED	0	0



<b>Mcohort</b>	30/03/2010	Mar 30: Grade 9 Math CANCELLED	1	0
<b>Math</b>	06/04/2010	Apr 06: Power Of Ten Demo Lessons	28	32
<b>Math</b>	07/04/2010	Apr 07: Patterns, Shape And Space	21	23
<b>Math</b>	07/04/2010	Apr 07: Power Of Ten Demo Lessons	1	0
<b>Math</b>	08/04/2010	Apr 08: Patterns, Shape And Space	17	16
<b>Math</b>	08/04/2010	Apr 08: Power Of Ten CANCELLED	Cancelled	0
<b>Mcohort</b>	09/04/2010	Apr 09: Infusing Literature In Math--2 days	7	7
<b>Math</b>	09/04/2010	Apr 09: Power Of Ten CANCELLED	Cancelled	0
<b>Math</b>	12/04/2010	Apr 12: NEW Grade 3 PAT P.M.	22	20
<b>MathDist</b>	12/04/2010	Demo Lessons/Teacher PLC	12	12
<b>Mcohort</b>	13/04/2010	Apr 13: Colony Cohort Day 2	7	4
<b>MathDist</b>	14/04/2010	Demo Lessons/Teacher PLC	6	6
<b>Mcohort</b>	15/04/2010	Apr 15: Big Ideas & Differentiated Instruction Cohort	Cancelled	0
<b>MathDist</b>	15/04/2010	Demo Lessons/Teacher PLC	6	6
<b>MathDist</b>	19/04/2010	Number Strategies PD Session	6	6
<b>MathDist</b>	19/04/2010	Number Strategies PD Session	8	8
<b>Math</b>	20/04/2010	Apr 20: Patterns CANCELLED	Cancelled	0
<b>MathDist</b>	20/04/2010	Demo Lessons/Teacher Debriefing	6	6
<b>MathDist</b>	20/04/2010	Math Grade 10 Planning	8	8
<b>MathDist</b>	21/04/2010	Math Grade 10 Planning	8	8
<b>Math</b>	22/04/2010	Apr 22: NEW Grade 6 And 9 PAT	30	29
<b>MathDist</b>	22/04/2010	Math Grade 6 Assessment	5	5
<b>MathDist</b>	23/04/2010	Building with Smart Gr. 7-12	10	10
<b>MathDist</b>	23/04/2010	Manips in High School Math/Smart	10	10
<b>MathDist</b>	23/04/2010	Math Grade 3 problem Solving	15	15
<b>Mcohort</b>	27/04/2010	Apr 27: Math And Literacy Cohort Day 3 Of 3	14	14
<b>Math</b>	28/04/2010	Apr 28: Power Of CANCELLED	Cancelled	0
<b>MathDist</b>	30/04/2010	SMART in Math K-6	12	12
<b>MathDist</b>	30/04/2010	Power of Ten/ Number K-6	12	12
<b>Mcohort</b>	03/05/2010	May 03: Bringing SMART Into Math Classroom Day 1 Of 2	Cancelled	0
<b>MathDist</b>	04/05/2010	Demo Lessons/Teacher debriefing	9	9
<b>MathDist</b>	05/05/2010	Demo Lessons/Teacher debriefing	7	7
<b>Math</b>	05/05/2010	May 05: Patterns French CANCELLED	Cancelled	0
<b>MathDist</b>	06/05/2010	Demo Lessons/Teacher debriefing	8	8
<b>MathDist</b>	07/05/2010	Demo Lessons/Teacher debriefing	8	8
<b>Mcohort</b>	07/05/2010	May 07: Colony Cohort Day 3	Cancelled	0
<b>MathDist</b>	10/05/2010	Demo Lessons/Teacher debriefing	8	8



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<b>MathDist</b>	11/05/2010	Demo Lessons/Teacher debriefing	8	8
<b>Math</b>	12/05/2010	May 12: Power Of CANCELLED	Cancelled	0
<b>MathDist</b>	12/05/2010	Teacher Planning/Front Matter	8	8
<b>MathDist</b>	12/05/2010	Teacher Planning/Front Matter	6	6
<b>MathDist</b>	19/05/2010	Demo Lessons/Teacher debriefing	8	8
<b>MathDist</b>	21/05/2010	Teacher PD K-5 Visual Strategies	17	17
<b>MathDist</b>	25/05/2010	Demo Lessons/Teacher debriefing	9	9
<b>Math</b>	26/05/2010	May 26: Power Of CANCELLED	Cancelled	
<b>Mcohort</b>	27/05/2010	May 27: Math Leadership Cohort	16	16
<b>MathDist</b>	28/05/2010	Math Grade 3 Planning	35	35
<b>MathDist</b>	02/06/2010	Math - SmartBoard	35	35
<b>Mcohort</b>	02/06/2010	June 02: Bringing SMART CANCELLED	Cancelled	0
<b>Math</b>	02/06/2010	June 02: Power Of CANCELLED	Cancelled	0
<b>Math</b>	22/06/2010	June 22: Provincial High School Math Institute	29	25
<b>TOTAL</b>				2382